processes, weighted by their probability of occurrence.

Underground facility means the underground structure, backfill materials, if any, and openings that penetrate the underground structure (e.g., ramps, shafts and boreholes, including their seals).

Waste form means the radioactive waste materials and any encapsulating or stabilizing matrix.

Waste package means the waste form and any containers, shielding, packing, and other absorbent materials immediately surrounding an individual waste container.

Yucca Mountain disposal system means the combination of underground engineered and natural barriers within the controlled area that prevents or substantially reduces releases from the waste.

Yucca Mountain site means the candidate site in the State of Nevada recommended by the Secretary to the President under section 112(b)(1)(B) of the Nuclear Waste Policy Act of 1982 (NWPA) (42 U.S.C. 1032(b)(1)(B)) on May 27, 1986.

Subpart B—Site Suitability Determination, Methods, and Criteria

§ 963.10 Scope.

(a) The scope of this subpart includes the following for both the preclosure and postclosure periods:

(1) The bases for the suitability determination for the Yucca Mountain site as a location for a geologic repository;

(2) The suitability evaluation methods for applying the site suitability criteria to a geologic repository at the Yucca Mountain site; and

(3) The site suitability criteria that DOE will apply in accordance with section 113(b)(1)(A)(iv) of the NWPA.

(b) DOE will seek NRC concurrence on any future revisions to this subpart.

§ 963.11 Suitability determination.

DOE will evaluate whether the Yucca Mountain site is suitable for the location of a geologic repository on the basis of the preclosure and postclosure determinations described in §§ 963.12 and 963.15. If DOE's evaluation of the Yucca Mountain site for the location of a geologic repository under §§ 963.12 and 963.15 shows that the geologic repository is likely to meet the applicable radiation protection standards for the preclosure and postclosure periods, then DOE may determine that the site is a suitable location for the development of such a repository.

§ 963.12 Preclosure suitability determination.

DOE will apply the method and criteria described in §§ 963.13 and 963.14 to evaluate the suitability of the Yucca Mountain site for the preclosure period. If DOE finds that the results of the preclosure safety evaluation conducted under § 963.13 show that the Yucca Mountain site is likely to meet the applicable radiation protection standard, DOE may determine the site suitable for the preclosure period.

§ 963.13 Preclosure suitability evaluation method.

(a) DOE will evaluate preclosure suitability using a preclosure safety evaluation method. DOE will evaluate the performance of the geologic repository at the Yucca Mountain site using the method described in paragraph (b) of this section and the criteria in § 963.14. DOE will consider the performance of the system in terms of the criteria to evaluate whether the geologic repository is likely to comply with the applicable radiation protection standard.

(b) The preclosure safety evaluation method, using preliminary engineering specifications, will assess the adequacy of the repository facilities to perform their intended functions and prevent or mitigate the effects of postulated Category 1 and 2 event sequences. The preclosure safety evaluation will consider:

(1) A preliminary description of the site characteristics, the surface facilities and the underground operating facilities;

(2) A preliminary description of the design bases for the operating facilities and a preliminary description of any associated limits on operation;

(3) A preliminary description of potential hazards, event sequences, and their consequences; and

(4) A preliminary description of the structures, systems, components, equipment, and operator actions intended to mitigate or prevent accidents.

§ 963.14 Preclosure suitability criteria.

DOE will evaluate preclosure suitability using the following criteria:

(a) Ability to contain radioactive material and to limit releases of radioactive materials;

(b) Ability to implement control and emergency systems to limit exposure to radiation;

(c) Ability to maintain a system and components that perform their intended safety functions; and

(d) Ability to preserve the option to retrieve wastes during the preclosure period.

§ 963.15 Postclosure suitability determination.

DOE will apply the method and criteria described in §§ 963.16 and 963.17 to evaluate the suitability of the Yucca Mountain site for the postclosure period. If DOE finds that the results of the total system performance assessments conducted under § 963.16 show that the Yucca Mountain site is likely to meet the applicable radiation protection standard, DOE may determine the site suitable for the postclosure period.

§ 963.16 Postclosure suitability evaluation method.

(a) DOE will evaluate postclosure suitability using the total system performance assessment method. DOE will conduct a total system performance assessment to evaluate the ability of the geologic repository to meet the applicable radiation protection standard under the following circumstances:

(1) DOE will conduct a total system performance assessment to evaluate the ability of the Yucca Mountain disposal system to limit radiological doses and radionuclide concentrations in the case where there is no human intrusion into the repository. DOE will model the performance of the Yucca Mountain disposal system using the method described in paragraph (b) of this section and the criteria in § 963.17. DOE will consider the performance of the system in terms of the criteria to evaluate whether the Yucca Mountain disposal system is likely to comply with the applicable radiation protection standard.

(2) DOE will conduct a separate total system performance assessment to evaluate the ability of the Yucca Mountain disposal system to limit radiological doses in the case where there is a human intrusion as specified by 10 CFR 63.322. DOE will model the performance of the Yucca Mountain disposal system using the method described in paragraph (b) of this section and the criteria in § 963.17. If required by applicable NRC regulations regarding a human intrusion standard, § 63.321, DOE will consider the performance of the system in terms of the criteria to evaluate whether the Yucca Mountain disposal system is likely to comply with the applicable radiation protection standard.

(b) In conducting a total system performance assessment under this section, DOE will:

(1) Include data related to the suitability criteria in § 963.17;

(2) Account for uncertainties and variabilities in parameter values and provide the technical basis for parameter ranges, probability distributions, and bounding values;

(3) Consider alternative models of features and processes that are consistent with available data and current scientific understanding, and evaluate the effects that alternative models would have on the estimated performance of the Yucca Mountain disposal system ;

(4) Consider only events that have at least one chance in 10,000 of occurring over 10,000 years;

(5) Provide the technical basis for either inclusion or exclusion of specific features, events, and processes of the geologic setting, including appropriate details as to magnitude and timing regarding any exclusions that would significantly change the dose to the reasonably maximally exposed individual;

(6) Provide the technical basis for either inclusion or exclusion of degradation, deterioration, or alteration processes of engineered barriers, including those processes that would adversely